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(71) Applicant

P & H Enterprises Limited

(Incorporated in the United Kingdom)

15 South Lane, New Malden, Surrey, KT3 5HU,  
United Kingdom

(72) Inventors

Raymond Parkyns

Michael Edward Howe

(74) Agent and/or Address for Service

W H Beck, Greener & Co

7, Stone Buildings, Lincoln's Inn, London, WC2A 3SZ,  
United Kingdom

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None

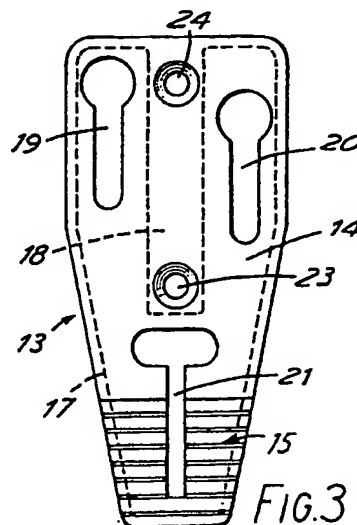
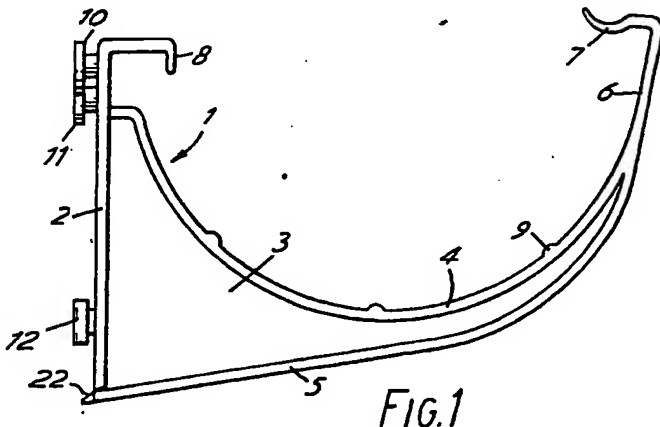
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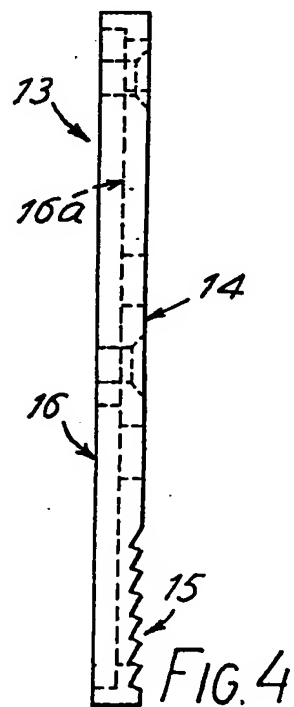
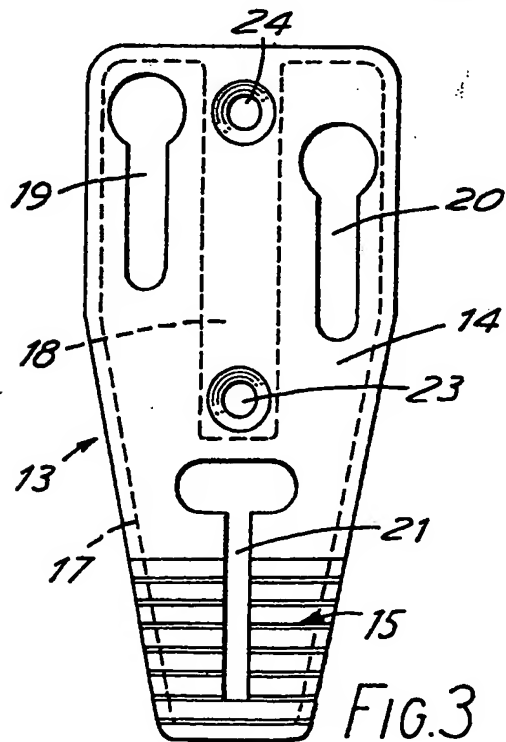
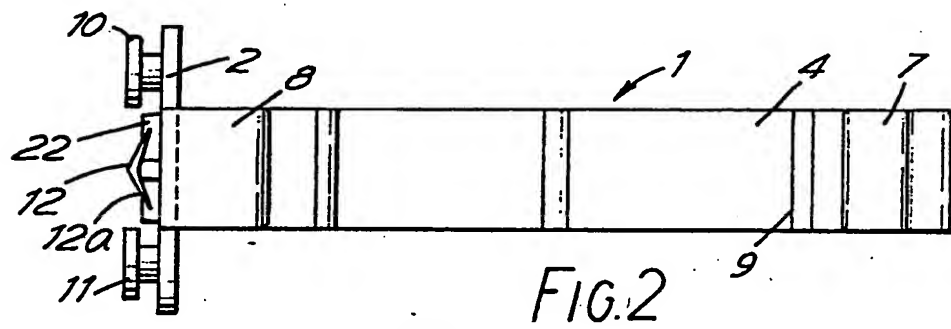
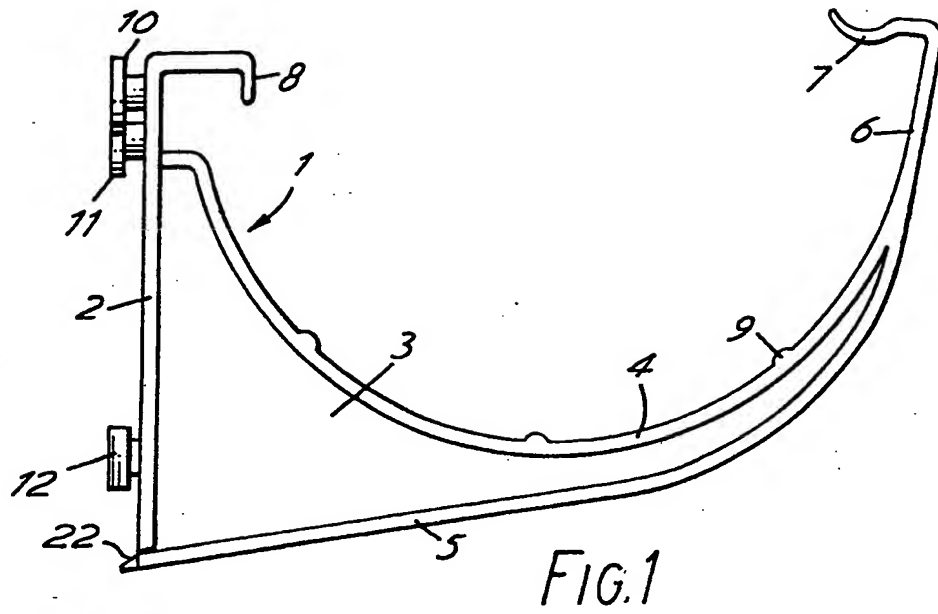
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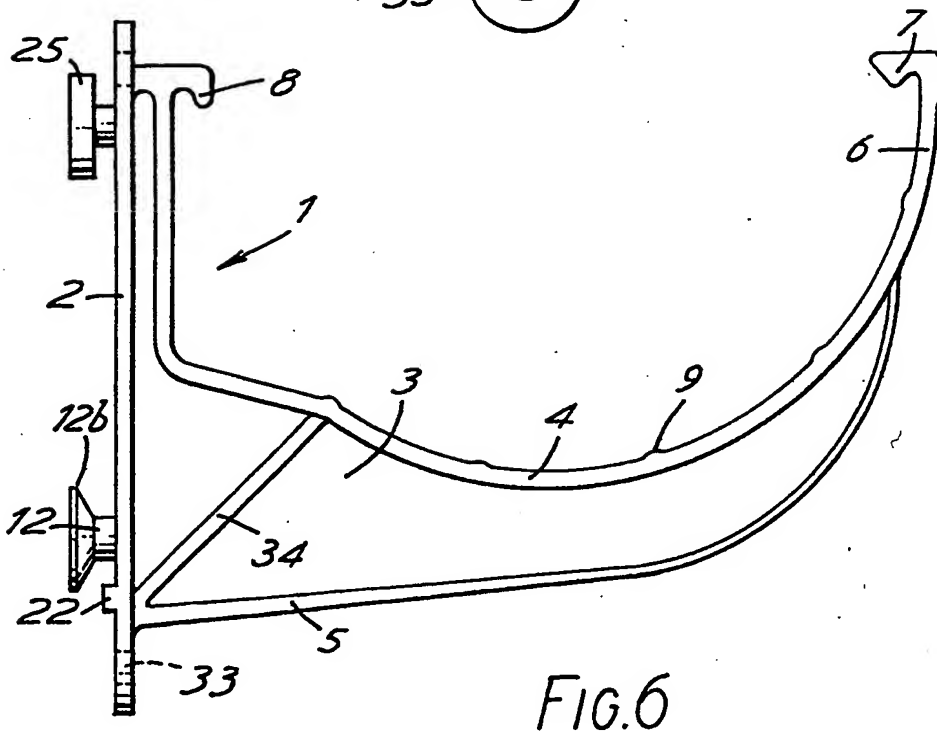
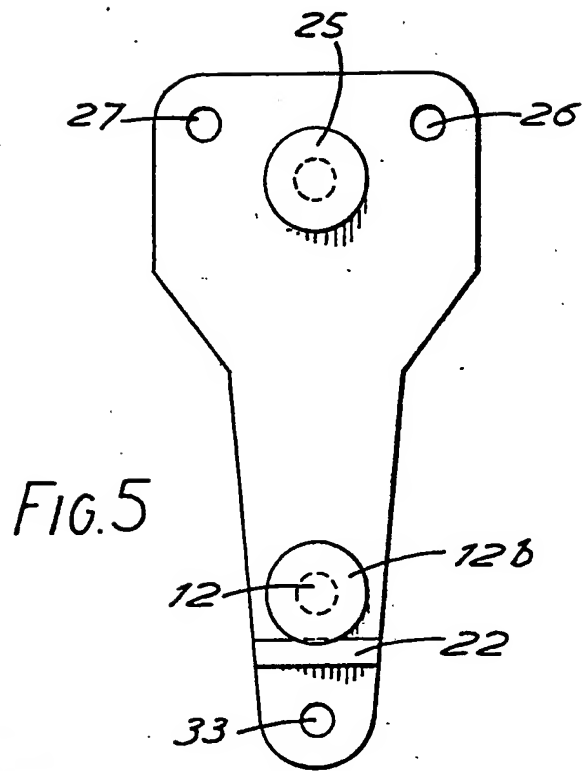
## (54) Adjustable gutter bracket

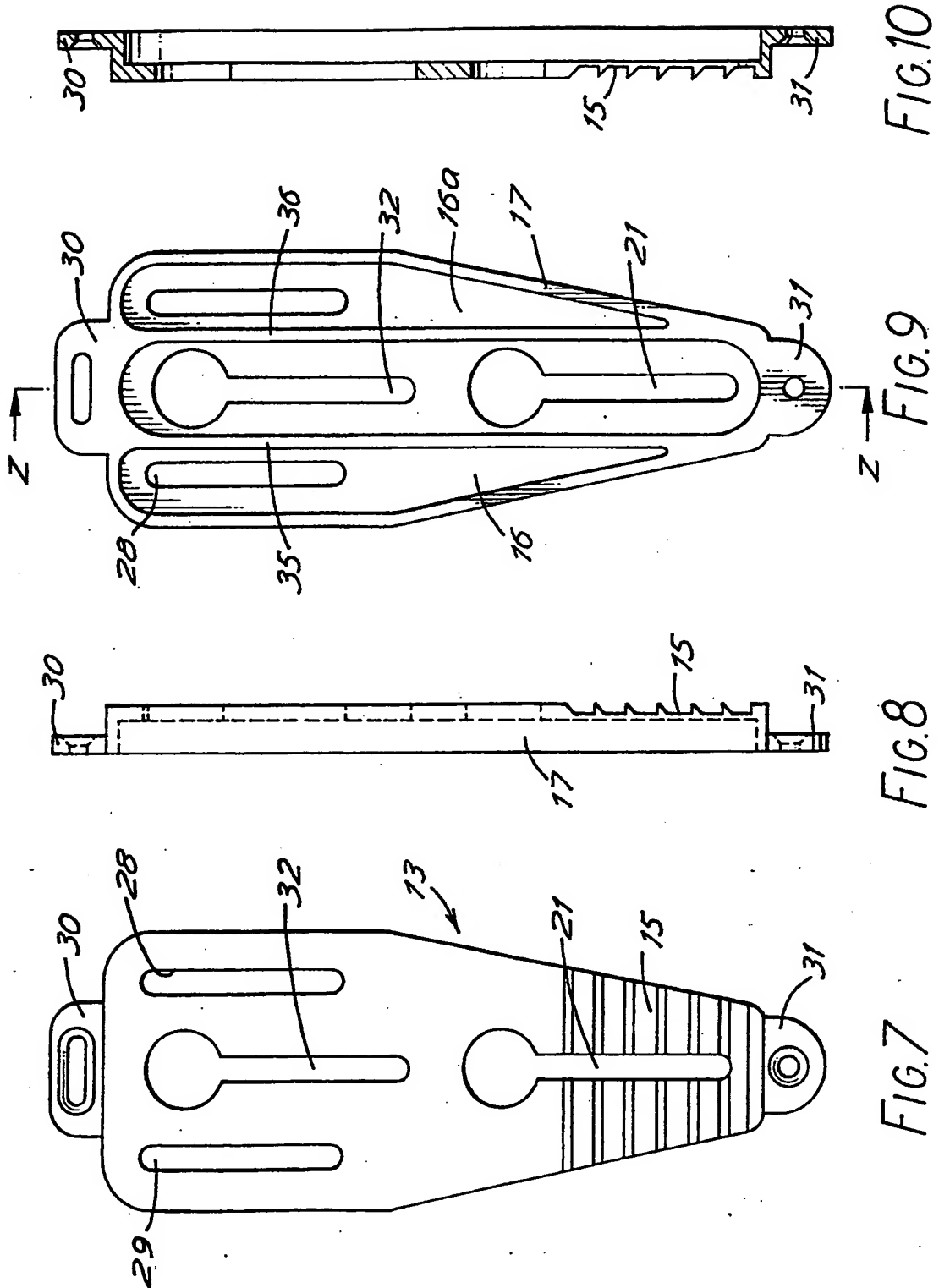
(57) An adjustable gutter bracket comprises a mounting member (13), securable to an upright supporting surface, and a gutter support (1). The mounting member and the support are provided with an elongate guideway (19, 20) and with a headed member (10, 11) engageable through and slideable in the said guideway so as to retain the mounting member and support releasably in assembly. The mounting member and the support are further provided with cooperating rack (15) and a detent (22) serving to retain the support in a selected height position relative to the mounting member. A further, resiliently deformable headed-pin (12) and slot (21) arrangement serves to retain detent (22) in engagement with rack (15).



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ADJUSTABLE CONDUIT BRACKET

This invention relates to a bracket, for supporting a portion of conduit in a manner allowing  
05 for adjustment of height with respect to a structure on which the bracket is secured. It has particular, but not exclusive, application to gutter support brackets.

The broad concept of an adjustable gutter support  
10 bracket is already known in the art. For example, UK Patent Nos. 672950, 666659, 1143422, 1269759 and published UK Patent Application Nos. 2083094 and 2176824 all disclose methods for vertical adjustment of a gutter supporting bracket with respect to a  
15 mounting plate fastenable to a roofing member. However, all these disclosures require the use of bolts or screws engaged through slots or holes in the mounting plate in order to locate the bracket in its required position.

20 GB 759039 discloses a curved gutter support strip reinforced by an L-shaped angle member. The upright limb of the angle member has a peg projecting from its lower end whilst its upper end has curved lugs to slidably receive a parallel metal mounting  
25 strip securable to a roof member. The mounting strip is provided with a series of peg holes along its lower

length, which holes releasably receive the peg on the angle member. Thus, the gutter support may be engaged with any appropriate hole as required for vertical adjustment with respect to the mounting strip.

05           US 2448750 discloses a curved gutter support member which is slidably engageable in a mounting plate securable to an upright wall of a building. The support is adjustably located along the mounting plate by operation of a worm drive connected to the bottom  
10   end of the mounting plate.

          GB 777256 discloses a mounting plate securable to a roof and a curved gutter support strip fastened to an L-shaped reinforcing member. The upright limb of the reinforcing member has an upper hook-shaped  
15   projection and a lower flange engageable with corresponding slots of a series of slots in the mounting plate. The reinforcing member is located in appropriate slots as required and can be held in position by bolts engaging with unoccupied slots.

20           WO 84/02552 discloses a gutter support system comprising a curved gutter support strip projecting from a backing plate, and a mounting plate engageable with a roofing fascia. The mounting plate is provided with a pair of spaced parallel retaining guides behind  
25   which the backing plate is slidable. Both the backing plate and the mounting plate have releasably

engageable formations in the form of ribs, slots or teeth etc, to enable the gutter to be retained in a selected position relative to the mounting plate.

The present invention seeks to provide an  
05 improved bracket permitting step by step adjustment, of a support with respect to a mounting member, by operation of adjustment means which are independent of retaining means serving to hold the support and mounting member in assembly.

10 According to the present invention a bracket for a conduit comprises a mounting member, adapted to be secured to an upright surface, and a conduit support for assembly with the mounting member, the mounting member and the support having a cooperating elongate  
15 guideway and headed member engageable through and slidable in said guideway for retaining the mounting member and support releasably in assembly, the mounting member and the support further having cooperating rack and detent means serving to retain  
20 the support in a selected height position relative to the mounting member.

Preferably, the elongate guideway comprises an elongate opening, which more preferably is flared or keyhole-shaped. It is particularly preferred that the  
25 elongate guideway is located on the mounting member whilst the headed member is located on the conduit support.

Advantageously, the mounting plate is securable to the upright supporting surface with a portion of its rear face spaced from the supporting surface. In a preferred embodiment, this spacing is achieved by  
05 recessing a portion of the rear face of the mounting plate, and it is then preferred that the elongate opening is located over such a recessed portion of the plate.

Preferably, the rack means comprises an array of  
10 laterally extending teeth oriented parallel to the axis of the conduit to be supported and spaced apart in the direction perpendicular to said axis, and the detent means comprises a laterally extending ridge receivable between two teeth of the said array. It  
15 is especially preferred that the rack means is located on the mounting plate and the detent means is located on the conduit support.

Usually the head of the headed member will be resiliently deformable to restrain movement between  
20 the conduit support and mounting member. In a preferred arrangement, the headed member is positioned adjacent the cooperating rack and detent means and has a resiliently deformable head, such as a pair of opposed wings, which normally serve to draw the detent  
25 means resiliently into engagement with the rack but which can be deformed by applied force for disengagement of the detent means from the rack for

purposes of adjustment. In an alternative embodiment, the head may comprise a continuous annular projection extending from the headed member, which projection can be rigid or resiliently deformable depending upon the  
05 relative size and shape of the guideway to be engaged.

Advantageously, the mounting member has two laterally-spaced upper keyhole openings and a single lower keyhole opening centrally disposed between them,  
10 and in a preferred construction, the two upper keyhole openings are offset in the direction normal to their spacing. The headed members of the support are similarly positioned to permit engagement through the openings.

15 In a preferred embodiment, the mounting member is a plate having its front face provided with transverse toothing at a lower part, and with keyhole openings in a zone recessed inwardly from the rear face. The conduit support has a backing member, to seat against  
20 the front face of the mounting member, and extending from said backing member, an upper pair of headed studs to engage into and slide along the upper keyhole openings, and a resilient winged catch member to engage into and slide along the lower keyhole opening,  
25 thereby to tend to urge a detent ridge on the support into firm engagement with a toothed rack on the mounting plate.

In a further embodiment, slots may be provided in the mounting member substantially parallel to the elongate guideway, and corresponding fixing holes may be provided in the conduit support to permit securing  
05 of the latter directly to an upright supporting surface.

In order that the nature of the invention may be readily ascertained, two presently preferred embodiments of gutter bracket in accordance therewith  
10 are hereinafter particularly described with reference to the accompanying drawing wherein:

Fig. 1 is a side elevation of a gutter support of a first gutter bracket;

Fig. 2 is a plan view of the gutter support of  
15 Fig. 1;

Fig. 3 is a front elevation of a mounting plate of the bracket of Fig. 1;

Fig. 4 is a side elevation of the mounting plate of Fig. 3;

20 Fig. 5 is a front elevation of a gutter support of a second gutter bracket;

Fig. 6 is a side elevation of the gutter support of Fig. 5 .

Fig. 7 is a front elevation of a mounting plate  
25 of the bracket of Fig. 5;

Fig. 8 is a side elevation of the mounting plate

of Fig. 7;

Fig. 9 is a rear elevation of the mounting plate of Fig. 7; and

Fig. 10 is a sectional view of the mounting plate  
05 taken along the line 2-2 of Fig. 9.

Referring first to Figures 1 to 4, the gutter support and mounting plate of a gutter bracket are shown in separated condition, but the manner of their engagement can be readily understood.

10 The gutter support 1 comprises a plane rigid backing member 2 from which there extends forwardly an integral web 3 between a first flange 4 and a second flange 5. The two flanges 4 and 5 merge at their remote end, as at 6, and are formed there into  
15 an overhanging clip portion 7. Another overhanging clip portion 8 is formed integrally at the upper end of the backing member 2. The upper flange 4 is part-circular to correspond to the shape of the guttering (not shown) which it is to support. Small  
20 ribs 9 are provided on the flange 4 to keep the guttering spaced from the flange 4.

On the rear face of the backing member 2 there are provided means for engaging releasably with the mounting plate. These means comprise two headed studs  
25 10,11 which are disposed at offset positions in the vertical direction (when viewed in the installed

condition of the bracket), adjacent the upper end of the backing member 2, and are spaced apart laterally. Adjacent the lower end of the backing member 2 there is provided a headed catch member 12 which has  
05 laterally extending wings 12a which are stiff but capable of slight resilient bending at least at their tips. The catch member 12 is centrally positioned, with respect to the studs 10,11.

Referring now to the mounting plate 13 of Figs. 3  
10 and 4, this is an elongate plate having its front face 14 plane except for a series of transverse teeth 15. The rear face 16 has a boundary wall 17 and a central block 18 but is otherwise recessed inwardly to form an internal face 16a.

15 In the recessed area of the mounting plate, adjacent its upper end, are provided two keyhole openings 19,20 which are staggered in the vertical direction to correspond to the staggering of studs 10,11. Each keyhole opening 19,20 can receive the  
20 respective stud 10,11 as a clearance fit, and the studs can slide down the lower part of the keyhole opening whereby the studs are engaged by their heads behind the recessed wall of the plate.

At a lower point of the mounting plate 13,  
25 corresponding to the position of the catch member 12, there is provided another keyhole opening 21 which has

a wide part at its upper end to receive the catch member, with clearance, and an elongate lower part which can receive slidably the neck of the catch member whilst the wings 12a are engaged with resilient  
05 pressure behind the mounting plate.

At the other end of the flange 5 of the support 1 there is provided a ridge 22 which is chamfered for engagement firmly into any selected one of the teeth  
15 of the mounting plate.

10 In the central block 18 of the mounting plate there are formed holes 23, 24 to receive wood-screws or like fasteners for securing the mounting plate in vertical position on the woodwork which is to support the guttering.

15 Once the mounting plate 13 has been secured in position, the gutter support 1 is engaged onto the mounting plate, with or without the gutter resting in the flange 4 on the ribs 9. For this purpose, the studs 10,11 are inserted through their respective  
20 keyhole openings 19,20 and the catch member 12 is inserted through its keyhole opening 21. In this condition, the ridge 22 will tend to engage into one or other of the teeth 15. By manual pressure on the support as a whole, to pull the lower flange 5  
25 outwardly with respect to the mounting plate, the ridge 22 can be pulled out of engagement with the

teeth 15, with resilient deformation of the wings of the catch member 12. The height of the gutter support 1, relative to mounting plate 13, can then be adjusted, e.g. for obtaining the desired slope of the guttering, whereafter release of the gutter support will permit the catch member 12 to draw the ridge 22 firmly into engagement with the selected tooth 15. The operation of adjustment can be repeated if desired. Once the correct position has been selected, the gutter support will remain in that relative position, and any downward force exerted by the weight of the guttering will merely serve to urge the ridge 22 even more firmly into engagement with the selected tooth 15.

The bracket as a whole can readily be made as two injection mouldings of weatherproof plastics material and requires no additional items other than two screws for security and mounting the plate to the woodwork.

A second gutter bracket in accordance with the present invention will now be described with reference to Figures 5 to 10. The same reference numerals in these Figures are used to identify similar parts to those of the bracket of Figures 1 to 4.

As can be seen from Figure 6, an additional reinforcing rib 34 is provided on the gutter support 1

between the upper flange 4 and the junction of the backing member 2 with the lower flange 5. The upper flange 4 deviates from arcuate form at the junction with the rib 34 to provide a step section, leading to  
05 a proximal portion extending parallel with the backing member 2 to connect with the overhanging clip 8.

In contrast to the previously described embodiment, only a single, centrally located headed stud 25 is provided at the upper end of the backing  
10 member 2. Moreover, fixing holes 26, 27 are provided on either side of the headed stud 25 through the backing member 2.

As previously, a headed catch member 12 is located in the lower half of the backing member, but  
15 this has a different form from that of the bracket of Figs 1 to 4, having a continuous annular flange 12b rather than paired wings 12a. The catch member 12 is directly below the stud 25 when the support is in its upright orientation.

20 Considering now the mounting plate 13 shown in Figures 7, 8, 9 and 10; as in the previous embodiment, the rear face 16 has a boundary wall 17 and is recessed inwardly to form an internal face 16a. However, instead of the central block 18 of the  
25 previous embodiment there are provided two spaced parallel ribs 35,36 connecting the boundary wall 17 at

the top end of the plate 13 with the boundary wall at the bottom end.

In the portion of the recessed face 16a between ribs 35,36 are located 2 colinear keyhole openings 32, 05 21 to correspond to the positions of the stud 25 and the catch member 12 respectively. The enlarged end of the upper keyhole opening 32 can receive the headed stud 25 as a clearance fit, the stud then being slidable down the elongate slot portion of said 10 opening whilst engaged by its head behind the recessed face 16a of the mounting plate 13.

The enlarged end of the lower keyhole opening 21 likewise receives the annular flange 12b of the catch member 12 with clearance, the neck of the catch being 15 slidable along the elongate slot portion of said opening whilst the wing 12b is engaged with resilient pressure behind the recessed face 16a of the mounting plate 13.

Instead of the fixing holes 23,24 in the central 20 block 18 of the embodiment of Figs. 1 to 4, there are provided fixing webs 30,31 at the top and bottom respectively of the mounting plate 13. The upper web 30 has a horizontal fixing slot, whereas the lower web 31 has a countersunk screw-hole. These openings can 25 accommodate screws, bolts or other fixing means allowing the mounting plate 13 to be secured to an

upright supporting surface.

Between the boundary wall 17 and each of the two ribs 35,36 is provided a respective fixing slot 28,29, each slot 28,29 being adjacent to and parallel to the upper keyhole opening 32.

Slots 28,29 corresponding in location to the fixing holes 26,27 respectively are provided in the gutter support 1, so that the latter may optionally be secured directly to the surface on which the mounting plate rests by use of fixing means passing through each of the aligned pairs of openings 26,28 and 27,29.

A further fixing hole 33 is provided in an extension at the lower end of the backing member 2 so as to be alignable with the slotted portion of the keyhole opening 21 and permit fastening therethrough.

It will be appreciated that the invention is not restricted to the particular details described above with reference to the drawings, and that numerous modifications and variations can be made without departing from the scope of the invention as defined in the following claims.

CLAIMS

1. A conduit bracket comprising a mounting member adapted to be secured to an upright surface, and a  
05 conduit support for assembly with the mounting member, the mounting member and the support having an elongate guideway and a headed member engageable through and slideable in said guideway for retaining the mounting member and support releasably in assembly, the  
10 mounting member and the support further having cooperating rack and detent means serving to retain the support in a selected height position relative to the mounting member.
- 15 2. A conduit bracket as claimed in Claim 1, wherein the elongate guideway comprises an elongate opening.
3. A conduit bracket as claimed in Claim 2, wherein the elongate opening is flared.
- 20 4. A conduit bracket as claimed in Claim 3 wherein the elongate opening is keyhole-shaped.
5. A conduit bracket as claimed in any one of the  
25 preceding claims, wherein the elongate guideway is

located on the mounting member and the headed member is located on the conduit support.

05 6. A conduit bracket as claimed in Claim 5, wherein the support is provided with a backing member, to seat against the front face of the mounting member, and on which backing member the headed member is located so as to be engageable in, and slidable along, the elongate guideway.

10

7. A conduit bracket as claimed in any one of the preceding claims, wherein the mounting plate is securable to the upright supporting surface with a portion of its rear face spaced from the said supporting surface.

15

8. A conduit bracket as claimed in Claim 7, wherein the said spacing is achieved by recessing a portion of the rear face of the mounting plate.

20

9. A conduit bracket as claimed in Claim 7 or Claim 8, wherein the elongate opening is located in the said spaced portion of the plate.

25 10. A conduit bracket as claimed in any one of the preceding claims, wherein the rack means comprises an

array of laterally extending teeth oriented substantially parallel to the axis of the conduit to be supported and spaced apart in the direction substantially perpendicular to the said axis, and  
05 wherein the detent means comprises a laterally extending ridge receivable within the said array of teeth.

11. A conduit bracket as claimed in any one of the  
10 preceding claims, wherein the rack means is located on the mounting plate and the detent means is located on the conduit support.

12. A conduit bracket as claimed in any one of the  
15 preceding claims, wherein the headed member is receivable adjacent the cooperating rack and detent means.

13. A conduit bracket as claimed in any one of the  
20 preceding claims, wherein the head of the headed member is resiliently deformable so as to restrain movement between the conduit support and mounting member.

25 14. A conduit bracket as claimed in Claim 12 or Claim 13, wherein the head of the headed member comprises a pair of opposed wings.

15. A conduit bracket as claimed in Claim 12 or Claim 13, wherein the head of the headed member comprises a continuous annular projection.

05 16. A conduit bracket as claimed in any one of the preceding claims, wherein the mounting member has two laterally-spaced upper keyhole openings and a single lower keyhole opening located centrally between them, and wherein headed members are correspondingly located  
10 on the support to permit engagement thereof through the said openings.

17. A conduit bracket as claimed in Claim 16, wherein the two upper keyhole openings are offset in the  
15 direction normal to their spacing.

18. A conduit bracket as claimed in Claim 16 or Claim 17 wherein:-

(a) the mounting member is a plate having its  
20 front face provided with transverse toothing at a lower part, and having a pair of keyhole openings located in an upper zone recessed inwardly from its rear face

(b) the conduit support is provided with a  
25 backing member, to seat against the front face of the

mounting member, and from which backing member extend two headed studs so as to be engageable into and slidable along the upper keyhole openings; and

(c) the conduit support has a resilient winged catch member to engage into and slide along the lower keyhole opening, thereby to tend to urge a detent ridge on the support into firm engagement with a toothed rack on the mounting plate.

10 19. A conduit bracket as claimed in any one of the preceding claims, wherein an opening is provided in the mounting member and a corresponding opening is provided in the conduit support so as to receive fastening means for securing of the support to the  
15 upright supporting surface.

20 20. A conduit bracket substantially as hereinbefore described with reference to Figures 1 to 4 of the accompanying drawings.

21. A conduit bracket substantially as hereinbefore described with reference to Figures 5 to 10 of the accompanying drawings.

25